A2LA Assessor Environmental Method Checklist

Chemical Oxygen Demand (COD)

Item	Section 1 - Personnel	Reference	Yes-No or NA	
1.1	Does the analyst(s) interviewed meet the job description position requirements, training and qualifications for performing the test? Supervisor:_____ Technician:_____	(G25)6.1		

Item	Section 2 - Equipment & Facilities	Reference	Yes-No or NA	
2.1	Is a reflux apparatus with ground glass joints available for use?	(SM18)5220B,2(1992)		
2.2	Are borosilicate culture tubes with TFE lined screw caps or ampules used as digestion vessels?	(SM18)5220C,2.c (1992)		
2.3	Is a block heater or oven capable of maintaining temperature at 150 ± 2°C available?	(SM18)5220C,2.a (1992)		
2.4	Is a spectrophotometer (for use at 600 nm) available for measurement?	(SM18)5220D,2.b (1992)		
2.5	Are the culture tubes or ampules optically matched when using the spectrophotometer?	(SM18)5220D,4.b (1992)		
2.6	Is a muffle furnace (capable of temperatures of 500°C) available for use?	(CAW)410.4,5.4(1978)		

Item	Section 3 - Method	Reference	Yes-No or NA	
3.1	Are the sample and reagents refluxed for two hours?	(SM18)5220C,4(1992)		
3.2	Are proper adjustments made for high chloride levels?	(SM18)5220A,2(1992)		
3.3	Is open reflux, dichromate oxidation, ferrous ammonium sulfate titration method used? [Note: 40CFR Part 136.3, Table 1.B, lists closed reflux methods 5220C, 5220D and 410.1 410.2, 410.3, and 410.4 as approved for CWA]	(SM18)5220B,1.a (1992)		
3.4	Is closed reflux/titrimetric method used?	(SM18)5220C,1(1992)		

3.5	Is the sample aliquot cooled while adding sulfuric acid to minimize the loss of volatiles?	(SM18)5220B,4.a (1992)		
3.6	Is closed reflux/colorimetric method used?	(SM18)5220D,1(1992)		
3.7	Is the low level method modification run when the COD is < 50 mg/L?	(SM18)5220B,4.b (1992)		
3.8	Is the ferrous ammonium sulfate (FAS) titrant standardized against $K_2Cr_2O_7$ on a daily basis?	(SM18)5220B,3.d (1992)		
3.9	Is the Potassium Hydrogen Phthalate (KHP standard) solution refrigerated and discarded after three months or if visible biological growth is observed?	(SM18)5220B,3.g (1992)		
3.10	Has it been determined that the 2 hour oven exposure will not damage the caps used on the culture tubes?	(SM18)5220C,2.c (1992)		
3.11	Are photometric measurements made at 600 nm?	(SM18)5220D,4.b (1992)		
3.12	Is a calibration curve consisting of a blank and at least five standards bracketing the measurement range developed when using the colorimetric technique?	(SM18)5220D,4.c (1992)		
3.13	Are calculations correct for the method performed?	(SM18)5220C,5(1992)		

Item	Section 4 - Sample Handling Practices	Reference	Yes-No or NA	
4.1	Are samples preserved with H_2SO_4 to pH <2, and cooled to 4°C, when analysis is not started immediately?	(CFR136)Table II (1994)		
4.2	Are samples analyzed within 28 days from the date of sample collection?	(CFR136)Table II (1994)		
4.3	Are glass containers used for sample bottles?	(CAW)410.1,3.1(1978)		
4.4	If plastic containers are used for sample bottles, are the bottles known to be free of organic contaminants?	(CAW)410.1,3.1(1978)		

Item	Section 5 - Quality Control Practices	Reference	Yes-No or NA	
5.1	Is a reagent blank run with each batch?	(SM18)5220C,4(1992)		
5.2	Is a reference standard Potassium hydrogen phthalate (KHP) analyzed with each batch?	(SM18)5220B,4.c (1992)		
5.3	Is the KHP dried to a constant weight at 120°C before use?	(SM18)5220B,3.g (1992)		
5.4	Is a new calibration curve prepared when a new lot of tubes or ampules are used and the check standard differs by $\geq$ 5%?	(SM18)5220D,4.c (1992)		

Chemical Oxygen Demand (COD) (contd.))

5.5	Are the analyst's initials for each step, date and time of digestion, date and time of measurement readings, and COD method recorded on the data sheet?	(SM18)5220,(1992)		
5.6	Is the temperature recorded as 150°C $\pm$ 2°C?	(SM18)5220C,4(1992)		
5.7	Are duplicates performed every 20 samples and is agreement for high level within $\pm$10%?	(SM18)1020B,6(1992)		
5.8	Are spikes performed every 10 samples and is agreement within $\pm$20% of known addition?	(SM18)1020B,2(1992)		